

REMARKS

In the present invention the transducer is covered by elastic. Moreover, the electrodes of the transducer are also substantially covered. The electrodes being comprised at least in part by a resin metal layer, the contact with a woven elastic is maintained if the transducer breaks into parts, as is spelled out detail in the background section of the original application. In the present invention, *each* broken part of the transducer can still be activated independently regardless of the size of the pieces or the break directions. The prior art does not disclose this “substantially covering” aspect, nor does it suggest or motivate it, either by any individual reference or any combination thereof.

Because the present invention allows each part of a broken transducer to still be activated independently, the electrodes are still connected with all the parts of the broken unit additionally because the electrodes are usually formed onto the piezoelectric ceramic material of the transducer by vacuum evaporation or sputtering. Further, the elasticity of the fiber cover layer ensures that the contacts of the electrodes with the broken parts are connected and parallel.

The elastic electric contact strips are integrally formed with the fiber cover layer. This combination of woven elastic for the contact strip with a fiber cover layer provides a level of elasticity that is not suggested in the prior art. The prior art teachings do not extend beyond combining fiber cover layers integrally formed with non-elastic electric contact strips. U.S. Patent 5,404,067 teaches only embedding of woven carbon fibers being provided between two piezo function elements into resin (see Fig. 3 in column 4, lines 59-66). In contrast to this method, the woven elastic electric contact strips are integrally connected with a fiber cover layer. Said integrally connected unit of woven elastic electric contact strips and fiber cover layer provides improved elastic properties and an improved mechanical and electrical conductivity.

This distinction is now structurally recited in claim 1 wherein it is recited that the contact strip is integrally laminated onto the fiber cover layers “by use of an epoxy resin having thermoplastic properties.”

New Claims

In response to the Examiner’s citation of Iten Figs. 1 and 2 showing the relative coverage of the electrode with the leads in rejecting the limitation in claim 21 that the electric contact strip “substantially overlies the transducer” it is noted that; item 7 in Iten never reaches any edges of item 6, and therefore cannot cover substantial portion of the surface area. On the same point, the Examiner notes Column 6, lines 1-18 of the Lazurus reference. Substantial coverage of one element substantially overlaying another is simply not stated in that passage, nor is it suggested or motivated. The specific statement on lines 12-14 is simply that metallization coating techniques are available for use. This is insufficient to reject the structure recited in the pending claim, i.e. that the contact strip substantially overlies the crystal.

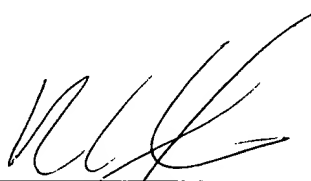
Without conceding any sufficiency of the cited art as sufficient grounds for rejecting the “substantially overlying” limitation, new claims 31-34 are added. These claims recite that the contact strips completely overlie the transducer. The exact same figures and text reference in the previous office action conclusively prove that there is no complete coverage revealed in the prior art cited, and that there is no coverage to three out of four sides. Accordingly, new claims 31 through 34 are allowable over the cited prior art.

Conclusion

It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



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